

REMARKS

In the Office Action, claims 6 and 7 were rejected under 35 U.S.C. § 112, second paragraph, for failing to point out which "natural language unit" is modified after comparing scores. With the present Amendment, claims 6 and 7 have been amended to more clearly indicate that it is the first natural language unit that is modified.

Claim 3 was also objected to because it ends with two periods. With the present Amendment, claim 3 has been amended to remove the second period.

Claim 1 has been amended to make the claim internally consistent.

Claims 1-7

Claims 1-7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Berger et al. (U.S. Patent 6,304,841, hereinafter Berger).

Berger discloses a translation system that is able to generate the probability of translating a sequence of words in a source language into a sequence of words in a target language. The sequence of words in the target language that provides the highest probability is then selected as the translation for the words in the source language. In order to generate this probability, Berger has developed a translation match score that is context dependent. This context dependence takes the form of weighted context functions. Using a bilingual corpus, Berger discloses a technique for training the weights of the context functions.

Independent claim 1 provides a method of training a natural language unit. The method includes generating a first meaning set from a first corpus using a first natural language unit and generating a second meaning set from a second corpus using a second natural language unit. The first meaning set is compared to the second meaning set to generate a score and the

score is then used to determine how to modify the first natural language unit.

Berger does not show or suggest the invention of claim 1 because it does not show or suggest the step of comparing a first meaning set to a second meaning set to generate a score. In the Office Action, it was asserted that Berger showed a comparison between meaning sets at Column 13, line 61-65. Applicants respectfully dispute this assertion.

In the cited section, Berger is not comparing two meaning sets to generate a score. Instead, Berger is generating a measure of merit for a context function that is a function of a word in the source language, a word in target language, and other words found in a sentence of the target language. This measure of merit is not a comparison between a first meaning set and a second meaning set, but is simply a measure of how well the context function predicts translations from the source word to the target word in the training corpus. This allows Berger to select which context function he will use in the determination of the probabilities.

Berger simply does not mention comparing a first meaning set to a second meaning set to generate a score. Further, Berger does not use a score to determine how to modify a first natural language unit, where that natural language unit was used to form the first meaning set.

Since Berger does not show or suggest comparing a first meaning set to a second meaning set to generate a score, it does not show or suggest the invention of claim 1 or claims 2-7, which depend therefrom. As such, claims 1-7 are patentably distinct from Berger.

Claim 4 is additionally patentable over Berger. Under claim 4, generating a meaning set from the first corpus comprises performing a syntactic parse on the first corpus to produce a set of syntactic parses and performing a semantic interpretation of

each syntactic parse to produce the meaning set. In the Office Action, Column 13, lines 11-15 and Column 6, lines 22-26 were cited as showing this step. However, the cited sections make no mention of performing a syntactic parse followed by a semantic parse. As such, claim 4 is additionally patentable over Berger.

Claims 8-12 and 15

Claims 8-12 and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Berger.

Independent claim 8 is directed to a computer-readable medium having computer-executable instructions for performing steps for training natural language units. The steps include converting a corpus of sentences into at least two meaning sets using at least two different natural language units. The meaning sets are compared to evaluate the performance of one or more of the at least two natural language units.

Berger does not perform a step of comparing two meaning sets to evaluate the performance of one or more natural language units. In particular, Berger's step of determining a measure of merit for context functions does not equate to comparing two meaning sets to evaluate the performance of one or more natural language units.

Since Berger does not show or suggest comparing at least two meaning sets to evaluate the performance of one or more natural language units, it does not show or suggest the invention of claim 8 or claims 9-12 and 15, which depend therefrom.

Claims 13-14

Claims 13 and 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Berger in view of Luo et al. (U.S. Patent Application 09/737,259, hereinafter Luo).

Luo discloses a technique for adapting a statistical parser using a Markov transform.

Under claim 13, changing a natural language unit comprises changing a syntactic parser after comparing at least two meaning sets to evaluate the performance of one or more natural language units. Under claim 14, changing a natural language unit comprises changing a semantic interpreter based on a comparison between meaning sets.

In the Office Action, it was asserted that it would have been obvious to those skilled in the art to modify the Berger system to change a parser when changing a natural language unit because training the parser would allow it to adapt more easily to newly acquired data. Applicants respectfully dispute this assertion.

Berger deals with a translation system while Luo deals with statistical semantic parsers. As such, these two references are attempting to solve two very different problems. Berger is attempting to construct a model that can be used to generate the probability of certain translations while Luo is trying to generate a model that could be used to divide an input sentence into semantic groups. There is no clear way of combining these two models and as such those skilled in the art would not be motivated to take the teachings of Luo and combine them with Berger. In particular, since Berger does not use a semantic parser, there would be no reason for Berger to modify a semantic parser such as the one found in Luo. As such, the combination of Luo and Berger does not show or suggest the inventions of claims 13 and 14.

In addition, claims 13 and 14 depend from claim 8. As such, they include the limitation to comparing two meaning sets to evaluate the performance of a natural language unit. Neither Berger nor Luo show a step of comparing two meaning sets to evaluate the performance of a natural language unit. As such, claims 13 and 14 are additionally patentable over Berger and Luo.

Claims 16-17

Independent claim 16 provides a method of training a natural language unit. The method includes generating a first action set from a first corpus using a first natural language unit and generating a second action set from a second corpus using a second natural language unit. The first action set is compared to the second action set to generate a score and the score is used to determine how to modify the first natural language unit.

Claims 16 and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Berger. However, Berger does not show a step of comparing a first action set to a second action set to generate a score. As such, Berger does not show or suggest the invention of claims 16 and 17.

Conclusion

In light of the above remarks, claims 1-17 are in form for allowance. Reconsideration and allowance of the claims is respectfully requested.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

WESTMAN, CHAMPLIN & KELLY, P.A.

By: 

Theodore M. Magee, Reg. No. 39,758  
Suite 1600 - International Centre  
900 Second Avenue South  
Minneapolis, Minnesota 55402-3319  
Phone: (612) 334-3222 Fax: (612) 334-3312

TMM:sew